**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A process for production of a microporous affinity membrane having regioselective affinity for compounds in blood or other biologically active fluids to be removed during purification of blood or said biologically active fluids, comprising

~~wherein~~ subjecting a microporous affinity membrane substrate having a blood side and a filtrate side ~~is subjected~~ to one or more cycles of plasma ignition in the presence of a gas mixture comprising [[a]] at least one functional group ~~containing~~ comprising at least one modifying gas,

wherein ~~functional groups are~~ the at least one functional group is regioselectively bound to pore surfaces of the microporous affinity membrane substrate.

2. (Currently Amended) The process according to claim 1, wherein the microporous affinity membrane substrate is a microporous hollow fibre membrane substrate ~~is subjected to the plasma ignition~~.

3. (Currently Amended) The process according to claim 1, wherein the microporous affinity membrane substrate is a microporous flat sheet membrane substrate ~~is subjected to the plasma ignition~~.

4. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein ligands having affinity for the compounds in blood or other biologically active fluids are bound to the at least one functional group ~~functional groups~~.

5. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein the at least one functional group is ~~functional groups also are~~ regio-selectively bound to surfaces on the filtrate side of the microporous affinity membrane substrate.

6. (Currently Amended) The process ~~according~~ according to claim 4, wherein the ligands are proteins, peptides, amino acids, carboxylic acids, nucleotides, oligonucleotides, ~~antigens or~~ antigens, antibodies, ~~and mixtures~~ or mixtures of two or more thereof.

7. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein the at least one functional group ~~containing~~ comprising at least one modifying gas comprises an amino, aldehyde, ester, epoxy, hydroxi acid, or sulfonic acid ~~group, preferably an amino group~~.

8. (Currently Amended) The process according to claim 7, wherein the at least one functional group ~~containing~~ comprising at least one modifying gas is diamino-cyclohexane (DACH) or diethylenetriamine (DETA)~~, preferably diaminocyclohexane~~.

9. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein the gas mixture also ~~contains a~~ comprises at least one carrier gas.

10. (Currently Amended) The process according to claim 9, wherein the at least one carrier gas ~~is any gas which~~ is chemically inert during the process~~, preferably helium, nitrogen, hydrogen, argon or mixtures thereof, most preferably helium~~.

11. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein ~~the flow rate of gas plasma mixture obtained by~~ the plasma ignition results in a gas plasma mixture with a flow rate of [[~~is~~]] 0.1-200 sccm/min.

12. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 9, wherein the proportion between the at least one functional group ~~containing~~ comprising at least one modifying gas and the at least one carrier gas is 1:100 to 1:1~~, preferably 1:4~~.

13. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 1, wherein up to 10 cycles of plasma ignitions are performed.

14. (Currently Amended) The process according to ~~any one of claims 2 and 4-13~~ claim 2, wherein the microporous hollow fibre membrane substrate is enclosed in a housing or a casing throughout the process~~, preferably a concentric housing or casing~~.

15. (Currently Amended) The process according to claim 2, wherein ~~the gas plasma mixture obtained by the plasma ignition is flowing~~ the plasma ignition results in a gas plasma mixture flowing axially along the outer or inner surface of the microporous hollow fibre membrane substrate.

16. (Currently Amended) The process according to claim 2, ~~14 or 15,~~ wherein the microporous hollow fibre membrane substrate is made up of a mixture of polyethylenesulfide and polyvinylpyrrolidone having an inner diameter of 200-1000 μm, ~~preferably about 330 μm~~, a wall thickness of 20-200 μm, ~~preferably about 110 μm,~~ a pore diameter of 0.1-0.8 μm, ~~preferably about 0.4 μm,~~ and is assembled in modules each having 1 hollow fibre or assembled in bundles or modules of ~~up to~~ more than 1000 fibres.

17. (Currently Amended) The process according to claim 2 ~~or any one of claims 14-16~~, wherein the ignition frequency during the plasma ignition is 1 kHz – 13.56 MHz or multiples of 13.56 mHz or microwave frequency, the power is 0.5-20 W, the voltage of the electrodes is 50-500 volts, the pressure is 0.01-10 mbar, the flow rate is 0.1-200 sccm/min, and the gas plasma mixture flow period is up to 20 min.

18. (Currently Amended) The process according to ~~claim 2 or any one of claims 14-17~~ claim 14, wherein the gas mixture is added to the housing or casing space surrounding the outer surface of the microporous hollow fibre membrane substrate in a diffusion controlled way at a pressure of 0.01-50 mbar.

19. (Currently Amended) The process according ~~claim 2 or any one of claims 14-17~~ to claim 14, wherein the gas mixture is added to the housing or casing space surrounding the outer surface of the microporous hollow fibre membrane substrate in a laminar flow or convection controlled way at a pressure of 50 mbar–1.1 bar.

20. (Currently Amended) The process according to claim 2 ~~or any one of claims 14-17~~, wherein the gas mixture is added to the lumen of the microporous hollow fibre membrane substrate in a laminar or convection controlled way at a pressure of 0.01-50 mbar.

21. (Currently Amended) The process according to ~~claim 2 or any one of claims 14-17~~ claim 14, wherein the gas mixture is added to the lumen of the microporous hollow fibre membrane substrate in a diffusion controlled way at a pressure of 50 mbar-1.1 bar, and wherein the housing space surrounding the outer surface of the microporous hollow fibre membrane substrate is filled with a blocking fluid~~, preferably polyethylene glycol~~.

22. (Currently Amended) The process according to ~~any one of claims 3-13~~ claim 3, wherein the microporous flat sheet membrane substrate throughout the process is enclosed in a housing or casing having a first and a second compartment separated from each other by said membrane substrate, wherein the surface on the filtrate side of said membrane substrate is facing the first compartment and the surface of the blood side is facing the second compartment, and wherein the gas mixture is added to said

first compartment and the functional groups during the plasma ignition in the presence of the gas mixture are bound to pore surfaces and the surface on the filtrate side of the microporous flat sheet membrane substrate.

23. (Currently Amended) The process according to claim 22, wherein ~~the flow rate of the gas plasma mixture obtained by~~ the plasma ignition results in a gas plasma mixture with a flow rate of [[~~is~~]] 1-100 sccm/min~~, preferably about 10 sccm/min~~.

24. (Currently Amended) The process according to claim 3, ~~22 or 23,~~ wherein the microporous flat sheet membrane substrate is made up of a mixture of polyethersulfone and polyvinylpyrrolidone having a wall thickness of 20-200 μm~~, preferably about 110 μm,~~ and a pore diameter of 0.1-0.8 μm~~, preferably about 0.4 μm~~.

25. (Currently Amended) The process according to claim 3 ~~or any one of claims 22-24~~, wherein the ignition frequency during the plasma ignition is 1 kHz – 13.56 MHz or multiples of 13.56 mHz or microwave, the power is 1-20 W, ~~preferably about 5 W,~~ the voltage of the electrodes is 50-300 volts, the pressure is 0.1-5 mbar, ~~preferably about 0.3 mbar,~~ the flow rate is 1-100 sccm/min, ~~preferably 10 sccm/min,~~ and the gas plasma mixture flow period is up to 30 min~~, preferably about 5 min~~.

26. (Currently Amended) The process according to ~~any one of the preceding claims~~ claim 22, wherein excessive gas is evacuated from the housing or casing spaces after the plasma ignition.

27. (Currently Amended) A microporous affinity membrane produced according to ~~any one of the preceding claims~~ claim 1, ~~and having regioselective affinity for compounds in blood or other biologically active fluids to be removed during purification of blood or said fluids,~~ wherein said microporous affinity membrane ~~is provided with~~ comprises at least one functional group, ~~functional groups,~~ bound only to [[~~the~~]] pore surfaces of the microporous affinity membrane.

28. (Currently Amended) The microporous affinity membrane according to claim 27, wherein the at least one functional group comprises an amino group ~~functional groups also are amino groups~~.

29. (Currently Amended) The microporous affinity membrane according to claim 27, wherein the at least one functional group is ~~functional groups also are~~ bound to ~~the surfaces on~~ the filtrate side.

30. (Currently Amended) The microporous affinity membrane according to ~~any one of claims 27-29~~ claim 27, wherein ligands having specificity for the components in blood or other biologically active fluids to be removed are bound to the functional groups.

31. (Currently Amended) The microporous affinity membrane according to ~~any one of claims 27-30~~ claim 27, wherein [[~~it is~~]] the microporous affinity membrane is a microporous hollow fibre membrane or a microporous flat sheet membrane.

32. (Currently Amended) A microporous affinity membrane according to claim 30, wherein the ligands are proteins, peptides, amino acids, carboxylic acids, nucleotides, oligonucleotides, antigens, [[~~or~~]] antibodies, [[~~and~~]] or mixtures of two or more thereof.

33. (Currently Amended) An adsorption device ~~containing~~ comprising the microporous affinity membrane according to ~~any one of claims 27-32~~ claim 27.

34-37. (Canceled)

38. (New) The process according to claim 1, wherein the at least one functional group comprising at least one modifying gas comprises an amino group.

39. (New) The process according to claim 9, wherein the at least one carrier gas comprises helium, nitrogen, hydrogen, argon, or a mixture of two or more thereof.

40. (New) The process according to claim 9, wherein the proportion between the at least one functional group comprising at least one modifying gas and the at least one carrier gas is 1:4.

41. (New) The process according to claim 14, wherein the housing or casing is concentric.

42. (New) The process according to claim 2, wherein the microporous hollow fibre membrane substrate is made up of a mixture of polyethylenesulfide and poly-vinylpyrrolidone having an inner diameter of about 330 μm, a wall thickness of about 110 μm, a pore diameter of about 0.4 μm, and is assembled in modules each having 1 hollow fibre or assembled in bundles or modules of more than 1000 fibres.

43. (New) The process according to claim 2, wherein the microporous hollow fibre membrane substrate is assembled in bundles or modules of up to 1000 fibres.

44. (New) The process according to claim 23, wherein the flow rate is about 10 sccm/min.

45. (New) The process according to claim 24, wherein the microporous flat sheet membrane substrate has a wall thickness of about 110 μm, and a pore diameter of about 0.4 μm.

46. (New) The process according to claim 25, wherein the power is about 5 W, the pressure is about 0.3 mbar, the flow rate is 10 sccm/min, and the gas plasma mixture flow period is about 5 min.

47. (New) A method of therapeutic apheresis, comprising treating blood or other biologically active fluids with the microporous affinity membrane according to claim 27.

48. (New) The method of claim 47, wherein blood constituents are not activated.

49. (New) A method of diagnosing the presence of a compound in a material comprising blood or other biologically active fluids, food, or water, comprising detecting the compound in the material with the microporous affinity membrane according to claim 27.

50. (New) The method of claim 49, wherein, when detecting the compound in blood or other biologically active fluids, blood constituents are not activated.

51. (New) A method of drug development, comprising detecting a potential drug compound in blood or other biologically active fluids with the microporous affinity membrane according to claim 27.

52. (New) The method of claim 51, wherein blood constituents are not activated.

53. (New) A method of purifying blood or other biologically active fluids, comprising comprising treating the blood or other biologically active fluids with the microporous affinity membrane according to claim 27.

54. (New) The method of claim 53, wherein blood constituents are not activated.